

Activity Two: Field Study

Location: Rocky Run, a Brandywine River Tributary

Question: What is the relationship between stream velocity and changes in stream elevation/slope?

Hypothesis: As the elevation/slope of the stream increases the velocity of the stream increases.

Procedure: A member of the group used 5 meters of string and a fishing bobber to measure the amount of time it took the bobber to travel 5 meter in the center of the stream.

Start area: 0.5 miles upstream from the mouth of the tributary

Slope or Gradient = Height 1 – Height 2 /Distance

Data:

Location 1 Slope or Gradient 0.1585 m

Trial	Time (sec/m)	Latitude	Longitude	Elevation
1	1.05	75.33.900 W	39.48.85 N	232.0 ft start
2	0.89			229.4 ft end
3	1.07			or
4	1.01			70.7136 m
5	0.92			69.9211 m

Location 2 Slope or Gradient 0.0914 m

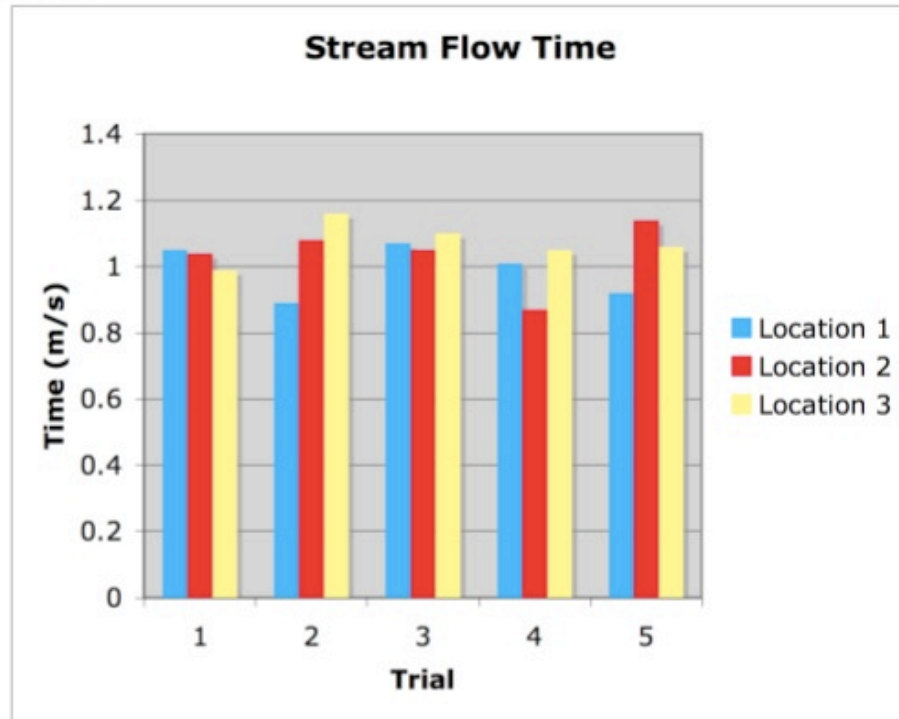
Trial	Time (sec/m)	Latitude	Longitude	Elevation
1	1.04	75.33.909 W	39.48.30 N	224 ft start
2	1.08			222.5 ft end
3	1.05			or
4	0.87			68.2752 m
5	1.14			67.818 m

Location 3 Slope or Gradient 0.1097 m

Trial	Time (sec/m)	Latitude	Longitude	Elevation
1	0.99	75.37.929 W	39.48.76 N	217 ft start
2	1.16			215.2 end
3	1.10			or
4	1.05			66.1416 m
5	1.06			65.5929 m

Graph the trial time data. Remember to label and title the graph. Include units. Use a different color for each trial.

Graph



Calculate the following:

Average Time for each location: Remember units.

Location 1 0.988

Location 2 1.036

Location 3 1.072

Analyze the data.

Question 1

Compare the slope/gradient to the average velocity. What observation can you make?

In areas with the greater slope or gradient the velocity of the water was greater.

Question 2

Was the hypothesis correct? Why or why not?

The experiment hypothesis was correct. Take any reasonable answer for why.